Formulation and Evaluation of Herbal Soap by using Natural Ingredients

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Abstract- An herbal soap and hand sanitizer was formulated using the leaf and bark extract of neem, tulsi, aloe Vera, turmeric, Reetha. Ayurvedic cosmetics is also known as herbal cosmetics. The natural content of herbs does not have a side effect on the human body. Most herbal supplements are based on numerous botanical ingredients with a long history of traditional or folk medicinal use. Among the numerous botanical ingredients available in the market today. Many chemical toxins and microorganisms in the atmosphere can cause chemical infections and skin damage. Cosmetics alone are not enough to take care of skin and body parts. Neem tree has attracted worldwide prominence owing to its wide range of medicinal properties, neem leaves and Its components have been found to have anti-inflammatory, anti-hyperglycaemic, anti-ulcer, anti-malarial, anti-fungal, anti-bacterial, and anti-carcinogenic properties. This study was conducted to evaluate the effects of aqueous, ethanol and ethyl acetate extracts of neem leaves. Herbal soap ingredients such as neem, tulsi, Vera, turmeric and Rita have been used in which neem leaves are effective against some dermatophytes. Reetha acts as a detergent and has cleansing and foaming activity and Tulsi shows antiviral activity.

Keywords - Herbal Soap, Neem, Tulsi, Aloe Vera, Turmeric, Reetha Rose Water, Soap Base, Essential Oil.

INTRODUCTION:

Soap is a salt of a fatty acid used in various cleaning and lubricating products. [1] In the home, soaps are surface substances that are commonly used for washing, bathing, and other types of household chores. In industrial settings, soaps are used as thickeners, components of some lubricants, and precursors for catalysts. When used for cleaning, soap loosens particles and dirt that can be removed from the item being cleaned. In hand washing, soap as a surfactant, when lathered with a little water, kills microorganisms by disrupting the lipid bilayer of their membrane and denaturing their proteins. It also emulsifies oils and allows them to be transported by running water. [2] Soap is made by mixing oils and fats with a base. A similar process is used to make laundry detergent, which is also made by mixing chemical compounds in a blender. [3]

Herbal Soaps are used for staying fresh and for hygienic purposes but after effect of using chemical soap is dry skin, skin damage and skin allergies. Soaps made from chemicals lead to many skin infections and diseases also. They clog the pores of skin and hinder the cells from breathing. By delaying the natural renewal process of skin, it makes the skin age faster. Moreover, the use of chemicals leads to severe damage to the environment also. Being the largest sense organ of the human body, skin not only as first line of protection but also prevent damage of the body by protecting the pores. [4,5] This herbal soap contains neem, tulsi, aloe leaf, turmeric, and rita as natural botanical ingredients that provide or show antibacterial, antifungal, and anti-inflammatory activity. Neem is the main compound in this soap and has healing properties. Neem leaf and its extract have immunomodulatory, anti-inflammatory, anti-ulcer, anti-malarial, anti-fungal, antibacterial, antioxidant and anti-carcinogenic properties. Tulsi has the greatest medicinal value. Tulsi are said to be effective in diabetes, they lower blood sugar levels. Tulsi is also used in acute respiratory syndrome. Its leaf water repels cold, bronchitis and cough. Tulsi reduces stress, improves stamina, reduces inflammation and also shows anti-fungal activity, so Tulsi is also used as the main ingredient in this herbal soap. The main antifungal activity of Tulsi is useful in soap formulation.[6]

MATERIAL-

Chemical-

- 1. Glycerine soap base
- 2. Orange oil
- 3. Rose water
- 4. Steric Acid
- 5. Ethanol

Collection of herbal plants or products-

- 1. Neem
- 2. Tulsi
- 3. Aloe vera
- 4. Turmeric
- 5. Reetha
- Content of the soap:
- 1. NEEM



Botanical name	Azadirachta indica	
Family	Meliaceae	
Part typically used	Leave.	
Colour	Green.	
Active Constituents	flavonoids, Alkaloids, Azadirone, nimbin,	
	nimbidin, terpenoid, steroids.	

Description- Neem leaves are medium-sized and oblong, with an average length of 20 to 40 centimeters. The light green leaves are smooth and glossy with sharp, serrated edges.

Uses- Effective in skin infection, rashes & pimples, Immunity booster, Anti-obesity, Blood purifier for beautiful & healthy skin, Anti diabetic, Anti-viral, Malaria, Piles, Hair disorder & Oral disorders.[7]

2.TULSI



Biological name	Ocimum tenuiflorum		
Common name	holy basil		
Family	Lamiaceae.		
Part typically used	leaves.		
Colour	Green		
Chemical Constituents	eugenol, germacrene, terpenes.		

Description- Tulsi is an erect, branched shrub, 30-60 cm tall, with simple opposite green or purple leaves, strongly scented, and hairy stems. Leaves are stalked and oval, up to 5 cm long, usually slightly toothed.

Uses- Antibacterial, antifungal, skin breaks out and reduces skin pollution, Rich in antioxidants. [8]

3.ALOVERA



Biological name	Aloe barbadensis miller	
Common name	Indian Aloe and Burn Aloe	
Family	Liliaceae	
Part typically used	leaves	
Colour	Green	
Chemical Constituents	vitamin, enzyme, minerals, sugars, lignin,	
	saponin, salicylic acid and amino acid	

Description- The leaves are grey to green and sometimes have white spots on their surfaces. **Uses-** it contains anti-aging qualities.[9]

4.TERMERIC



Biological name	curcuma longa
Common name	haldi
Family	Zingiberaceae
Part typically used	root
Chemical Constituents	curcumin, demethoxycurcumin, and
	bisdemethoxycurcumin

Description- Turmeric plants grow to a height of about 1 meter (3.3 feet) and have long, simple leaves with long petioles. Dried rhizomes are 2.5 to 7.5 cm (1 to 3 in) long.

Uses- reduce skin inflammation and repair the damage of the skin. The soap soothes the pores and creates a calming effect.[10]

5.REETHA



Biological name	Sapindus mukorossi
Common name	Indian soapberry
Family	Sapindaceae
Part typically used	Seeds
Chemical Constituents	saponins, sugars and mucilage

Description- The fruit is a small leathery skinned drup 1 to 2 cm in diameter, yellow ripening blackish, containing 1 to 3 seeds **Uses**- Detergent, Surfactant. [11]

OTHER INGRIDIENT

- Rose water
- ➤ Ethanol
- Glycerine soap base
- Steric Acid
- Orange oil.

APPARATUS-

- A glass measuring cup, a microwave, and a water bath,
- Spoon,
- Moulds for soap,
- As a soap base,
- Optionally, add goods, colour, and aroma to the mix,
- Digital balance.[12]

Extraction

The neem, tulsi, aloe vera leaf, Tumeric and reetha powder was extracted with water by decoction process. 9 gm of above stated powder was taken in conical flask and extracted with water for four hours with occasional agitation. Then filtered all ingridients.[13]

Formulation of Soap- [14]

Table (1)

Chemicals use in herbal soap		
	Chemical	
	Orange all	

Chemical	Source
Orange oil	Laboratory reagent
Steric Acid	Laboratory reagent
Ethanol	Laboratory reagent
Glycerine soap base	Laboratory reagent
Rose water	Laboratory reagent

Table (2) Herbs use in soap

Herbal plant	Source
Neem	Leaf
Tulsi	Leaf
Aloe vera	Leaf
Turmeric	Root
Reetha	Fruit

Formula of Herbal soap-

The formula shown in Table 3 is best suited for the preparation of herbal soaps.[15]

	Table (3)		
Sr. No.	Ingredients	Quantity	Use
1	Steric Acid	1gm	Hardening
3	Ethanol	5ml	Solvent and Anti- microbial
4	Neem powder	4gm	Anti-bacterial
5	Tulsi	1gm	Anti-viral
8	Aloe vera	4gm	Anti-Aging
9	Turmeric powder	0.5gm	Antioxidant
10	Reetha	3gm	Surfactant
11	Rose water	4ml	cooling agent
12	Orange oil	q.s.	Perfume

Methodology or Procedure- [16]

1. Take 4gm of neem powder in a Mortar then this mortar may be added 1gm of tulsi, 4gm of aloe vera, turmeric 0.5gm, 3gm of reetha and 4ml rose water and then all are triturate 2 to 3 min.

2. Melt the Glycerine Base soap by the double heat method, boil some water and then take 12gm of glycerine base soap in water and it melt.

3. After melt base add mix all triturate ingredient in the melt soap and mix it them finally heat Stop and add orange oil in the preparation solution.

4. The semisolid mixture was poured into a mould and allowed to solidify.

5. Final soap is ready and it packing in the paper

Evaluation of Studies for Prepared Formulations- [30,31,32]

1. **Determination of Clarity, Color and Odors-** Clarity and color was checked by naked eyes against white background, the odor was smelled.

2. **Thermal stability**- Thermal stability of the formulation was determined by the humidity chamber controlled at 60-70/ RH at room temperature. This soap is mainly stable at room temperature temperature increases it mainly unstable.

3. **Determination of pH**- 5 to 6 g of the soap was weighted accurately in a 100ml beaker 40ml water was added and dispersed the soap in it. The pH of the solution is determined by using pH meter. pH of soap is 9.5. the pH was determined by using pH paper. The pH was found to be basic in nature.

4. **Stability studies-** The stability studies were carried out as per ICH guidelines. the soap filled in bottle and keep in humidity chamber maintained at30to 2,60 to 5 and 70 to 5/ RH for two months. At the end of studies sample were analysed for the physical properties and viscosity. High moisture content it well be effect on the soap.

5. Foam Height- 0.5 gm of sample of soap was taken dispersed in 25 ml distilled water. Then transferred it into 100 ml measuring cylinder; volume was made given and stand till aqueous volume measured the foam height, above the aqueous volume.
6. Foam Retention- 25 ml of the 1% soap solution was taken into a 100 ml graduated measuring cylinder. The cylinder was covered with hand and shaken 10 times. The volume of foam at 1-minute intervals for 4 minutes was recorded.

RESULT AND DISCUSSION-

Physical Examination-

Sr. No. Parameter

Observation

1.	Colour	Dark Brown
2.	Odour	Sweet and Orange
3.	Shape	Oval
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4.	Appearance	Good

Evaluation Result-

Sr. No	Parameter	Observation
1.	Physical Appearance	Solid and Dark Brown in colour
2.	Thermal Stability	stable at room temperature temperature increases it mainly unstable
3.	Determination of pH	pH was found to be basic in nature pH is 9.5
4.	Stability studies	Stable for 2 months
5.	Foam hight	Foam height: 10 cm
6.	Foam retention	foam at 1-minute intervals for 4 minutes was recorded

CONCLUSION-

The plant products of neem, tulsi, aloe vera, turmeric, reetha constituents of extraction was studied. The prepared formulation when tested for different test gave good results. It does not give any irritancy to skin it was determined by using this soap by few volunteers hence it is proved that soap does not give any irritancy to skin. Furthermore, the prepared soap was standardized by evaluating various physical and chemical properties such as pH appearance odour in which the exhibit satisfactory effect.

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